IN THE CLAIMS

This listing of claims replaces all prior versions, and listings, in this application.

1. (original) A genetic marker linked to a gene locus involved in barley resistance to yellow mosaic disease,

wherein the genetic marker resides in 1H chromosome of barley, and

wherein the genetic marker is amplified with a first primer set that comprises a primer having the base sequence of SEQ ID NO: 1 and a primer having the base sequence of SEQ ID NO: 2.

2. (original) A genetic marker linked to a gene locus involved in barley resistance to yellow mosaic disease,

wherein the genetic marker comprises: a genetic marker of claim 1; and at least one genetic marker linked to a gene locus involved in barley resistance to yellow mosaic disease, selected from the group consisting of:

(1) a genetic marker that resides in 1H chromosome of barley and is amplified with a second primer set that comprises a primer having the base sequence of SEQ ID NO: 3 and a primer having the base sequence of SEQ ID NO: 4;

(2) a genetic marker that resides in 1H chromosome of barley and is amplified with a fifth primer set that comprises a primer having the base sequence of SEQ ID NO: 19 and a primer having the base sequence of SEQ ID NO: 20;

(3) a genetic marker that resides in 1H chromosome of barley and is amplified with a sixth primer set that comprises a primer having the base sequence of SEQ ID NO: 21 and a primer having the base sequence of SEQ ID NO: 22;

(4) a genetic marker that resides in 1H chromosome of barley and is amplified with a seventh primer set that comprises a primer having the base sequence of SEQ ID NO: 23 and a primer having the base sequence of SEQ ID NO: 24;

(5) a genetic marker that resides in 2H chromosome of barley and is amplified by:

ligating a DNA fragment, obtained by digesting genomic DNA of barley with restriction enzymes MseI and EcoRI, to an MseI adapter having the base sequences of

SEQ ID NO: 47 and 48, and an EcoRI adapter having the base sequences of SEQ ID NO: 49 and 50;

pre-amplifying the ligated DNA fragment with an MseI universal primer having the base sequence of SEQ ID NO: 51, and an EcoRI universal primer having the base sequence of SEQ ID NO: 52; and

amplifying the pre-amplified fragment with an eighth primer set that comprises a primer having the base sequence of SEQ ID NO: 25 and a primer having the base sequence of SEQ ID NO: 26;

(6) a genetic marker that resides in 2H chromosome of barley and is amplified a ninth primer set that comprises a primer having the base sequence of SEQ ID NO: 27 and a primer having the base sequence of SEQ ID NO: 28;

(7) a genetic marker that resides in 3H chromosome of barley and is amplified a third primer set that comprises a primer having the base sequence of SEQ ID NO: 5 and a primer having the base sequence of SEQ ID NO: 6;

(8) a genetic marker that resides in 3H chromosome of barley and is amplified a fourth primer set that comprises a primer having the base sequence of SEQ ID NO: 7 and a primer having the base sequence of SEQ ID NO: 8;

(9) a genetic marker that resides in 3H chromosome of barley and is amplified by:

ligating a DNA fragment, obtained by digesting genomic DNA of barley with restriction enzymes MseI and EcoRI, to an MseI adapter having the base sequences of SEQ ID NO: 47 and 48, and an EcoRI adapter having the base sequences of SEQ ID NO: 49 and 50;

pre-amplifying the ligated DNA fragment with an MseI universal primer having the base sequence of SEQ ID NO: 51, and an EcoRI universal primer having the base sequence of SEQ ID NO: 52; and

amplifying the pre-amplified fragment with a tenth primer set that comprises a primer having the base sequence of SEQ ID NO: 29 and a primer having the base sequence of SEQ ID NO: 30;

(10) a genetic marker that resides in 3H chromosome of barley and is amplified by:

ligating a DNA fragment, obtained by digesting genomic DNA of barley with restriction enzymes MseI and EcoRI, to an MseI adapter having the base sequences of

SEQ ID NO: 47 and 48, and an EcoRI adapter having the base sequences of SEQ ID NO: 49 and 50;

pre-amplifying the ligated DNA fragment with an MseI universal primer having the base sequence of SEQ ID NO: 51, and an EcoRI universal primer having the base sequence of SEQ ID NO: 52; and

amplifying the pre-amplified fragment with an eleventh primer set that comprises a primer having the base sequence of SEQ ID NO: 31 and a primer having the base sequence of SEQ ID NO: 32;

(11) a genetic marker that resides in 3H chromosome of barley and is amplified a twelfth primer set that comprises a primer having the base sequence of SEQ ID NO: 33 and a primer having the base sequence of SEQ ID NO: 34;

(12) a genetic marker that resides in 4H chromosome of barley and is amplified by:

ligating a DNA fragment, obtained by digesting genomic DNA of barley with restriction enzymes MseI and EcoRI, to an MseI adapter having the base sequences of SEQ ID NO: 47 and 48, and an EcoRI adapter having the base sequences of SEQ ID NO: 49 and 50;

pre-amplifying the ligated DNA fragment with an MseI universal primer having the base sequence of SEQ ID NO: 51, and an EcoRI universal primer having the base sequence of SEQ ID NO: 52; and

amplifying the pre-amplified fragment with a thirteenth primer set that comprises a primer having the base sequence of SEQ ID NO: 35 and a primer having the base sequence of SEQ ID NO: 36;

(13) a genetic marker that resides in 4H chromosome of barley and is amplified by:

ligating a DNA fragment, obtained by digesting genomic DNA of barley with restriction enzymes MseI and EcoRI, to an MseI adapter having the base sequences of SEQ ID NO: 47 and 48, and an EcoRI adapter having the base sequences of SEQ ID NO: 49 and 50;

pre-amplifying the ligated DNA fragment with an MseI universal primer having the base sequence of SEQ ID NO: 51, and an EcoRI universal primer having the base sequence of SEQ ID NO: 52; and

amplifying the pre-amplified fragment with a fourteenth primer set that comprises a primer having the base sequence of SEQ ID NO: 37 and a primer having the base sequence of SEQ ID NO: 38;

(14) a genetic marker that resides in 4H chromosome of barley and is amplified by:

ligating a DNA fragment, obtained by digesting genomic DNA of barley with restriction enzymes MseI and EcoRI, to an MseI adapter having the base sequences of SEQ ID NO: 47 and 48, and an EcoRI adapter having the base sequences of SEQ ID NO: 49 and 50;

pre-amplifying the ligated DNA fragment with an MseI universal primer having the base sequence of SEQ ID NO: 51, and an EcoRI universal primer having the base sequence of SEQ ID NO: 52; and

amplifying the pre-amplified fragment with a fifteenth primer set that comprises a primer having the base sequence of SEQ ID NO: 39 and a primer having the base sequence of SEQ ID NO: 40;

(15) a genetic marker that resides in 4H chromosome of barley and is amplified by:

ligating a DNA fragment, obtained by digesting genomic DNA of barley with restriction enzymes MseI and EcoRI, to an MseI adapter having the base sequences of SEQ ID NO: 47 and 48, and an EcoRI adapter having the base sequences of SEQ ID NO: 49 and 50;

pre-amplifying the ligated DNA fragment with an MseI universal primer having the base sequence of SEQ ID NO: 51, and an EcoRI universal primer having the base sequence of SEQ ID NO: 52; and

amplifying the pre-amplified fragment with a sixteenth primer set that comprises a primer having the base sequence of SEQ ID NO: 41 and a primer having the base sequence of SEQ ID NO: 42;

(16) a genetic marker that resides in 5H chromosome of barley and is amplified by:

ligating a DNA fragment, obtained by digesting genomic DNA of barley with restriction enzymes MseI and EcoRI, to an MseI adapter having the base sequences of SEQ ID NO: 47 and 48, and an EcoRI adapter having the base sequences of SEQ ID NO: 49 and 50;

pre-amplifying the ligated DNA fragment with an MseI universal primer having the base sequence of SEQ ID NO: 51, and an EcoRI universal primer having the base sequence of SEQ ID NO: 52; and

amplifying the pre-amplified fragment with a seventeenth primer set that comprises a primer having the base sequence of SEQ ID NO: 43 and a primer having the base sequence of SEQ ID NO: 44; and

(17) a genetic marker that resides in 5H chromosome of barley and is amplified by:

ligating a DNA fragment, obtained by digesting genomic DNA of barley with restriction enzymes MseI and EcoRI, to an MseI adapter having the base sequences of SEQ ID NO: 47 and 48, and an EcoRI adapter having the base sequences of SEQ ID NO: 49 and 50;

pre-amplifying the ligated DNA fragment with an MseI universal primer having the base sequence of SEQ ID NO: 51, and an EcoRI universal primer having the base sequence of SEQ ID NO: 52; and

amplifying the pre-amplified fragment with an eighteenth primer set that comprises a primer having the base sequence of SEQ ID NO: 45 and a primer having the base sequence of SEQ ID NO: 46.

Claims 3-18 (canceled)

19. (previously presented) A method for isolating a DNA fragment that includes a gene locus involved in barley resistance to yellow mosaic disease, using a genetic marker of claim 1.

20. (original) A method for producing a yellow mosaic disease-resistant barley, which comprises introducing a DNA fragment, isolated by the method of claim 19 and including a gene locus involved in barley resistance to yellow mosaic disease, into genomic DNA of barley.

21. (original) A yellow mosaic disease-resistant barley produced by the method of claim 20.

22. (previously presented) A method for screening for a yellow mosaic disease-resistant barley, using a genetic marker of claim 1 as an index.

23. (previously presented) A gene detecting instrument on which a genetic marker of claim 1 is fixed.